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Cultural Intelligence Domain and Assessment

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ABSTRACT The construct of *cultural intelligence*, recently introduced to the management literature, has enormous potential in helping to explain effectiveness in cross cultural interactions. However, at present, no generally accepted definition or operationalization of this nascent construct exists. In this article, we develop a conceptualization of cultural

intelligence that addresses a number of important limitations of previous definitions. We present a concise definition of cultural intelligence as a system of interacting abilities, describe how these elements interact to produce culturally intelligent behavior, and then identify measurement implications.

KEY WORDS • cross cultural management • cross cultural skills • cultural competence • cultural intelligence • cultural metacognition

Over the years, many studies have alluded to the idea that there are certain attributes that some individuals have that allow them to be effective in cross cultural communication (Ting-Toomey, 1999), in overseas assignments (Caligiuri, 2000; Church, 1982) or more generally in cross cultural interactions (Cushner and Brislin, 1996). However, it is only recently that efforts to describe this individual difference in terms of a type of intelligence have emerged. *Cultural intelligence* has recently been introduced as a quantitative continuum of individual difference along which people may be arrayed according to how much of this attribute they possess (Earley, 2002; Earley and Ang, 2003; Thomas and Inkson, 2003). However, these definitions fall short of specifying the construct as more than a loosely aggregated set of facets conceptually similar to intercultural competency, global mindset or a host of other similar terms, or as an extension of constructs such as social intelligence to a new domain.

In this article, we define cultural intelligence based on a review of literature in the domains of cross cultural interactions, social cognition, and intelligence. We address fundamental conceptual issues in construct validity (Schwab, 1980), including what is, and is not, to be included in the construct and its relationship to effective cross cultural interactions. In addition, we discuss the dimensionality, stability, and level of analysis of cultural intelligence, which are of central importance to both measurement and the further development of a nomological net, or theory of interconnections between related constructs. Each of these issues is addressed ahead.

A Type of Intelligence

Defining this new construct as a type of intelligence, as opposed to intercultural competency, global mindset or any number of other similar terms, has two advantages. First, it substitutes well-studied ideas in cognitive psychology for the more popular concepts that have made their way into the international management literature. For example the term 'global mindset' is widely used in the management literature, but there continues to be a good deal of confusion surrounding the definition and constituent elements of this construct (see Levy et al., 2007 for a discussion). Second, it segregates this individual difference construct from institutional and environmental influences on effective cross cultural behavior (see Johnson et al., 2006). However, categorizing it as such requires that we first provide our perspective on the meaning of intelligence. Intelligence, a fundamentally scientific construct that is not physically verifiable, has been notoriously difficult to define. In general, we adopt Sternberg's (1997a) definition that identifies intelligence as the abilities necessary for adaptation to, as well as selection and shaping of, an environmental context. This definition is consistent with those of the doyens of intelligence testing such as Binet and Simon (1916), and Wechsler (1944), in that it captures the fundamental idea of being able to adapt to the environment. But, as we discuss in more detail ahead, it also accepts Sternberg's (1997a) notion that intelligence involves selecting and shaping the environmental context. Our perspective is also guided by a number of theories of intelligence that describe it as a multifaceted construct (e.g. Gardner, 1983;

Sternberg et al., 2003). Here, we embrace the view that intelligence is a *system* of interacting abilities (Sternberg, 1997a). These factors combine to define the ability of adapting to, and enacting, a specific type of environment: one that is characterized by cultural diversity and cross cultural interactions. That is, and in contrast to previous definitions, we describe cultural intelligence as a unique construct that emerges as a result of the interaction of its facets (see Table 1 for a summary of definitions of *cultural intelligence*).

Related constructs that depart from a purely cognitive view of intelligence should be distinguished from our current focus. The first is the ability to understand oneself and others in a social situation and thus effectively interact with others – so-called social intelligence (Kihlstrom and Cantor, 2000). The construct that has received the most attention in recent years, however, is that of emotional intelligence, the ability to perceive the emotional states of others and to regulate one's own emotional state in the service of improved interactions (Goleman, 1995). While work on emotional intelligence has been rightly criticized on a number of fronts because of its very loose specification and wildly extravagant claims (see Matthews et al., 2002), some research, primarily by Mayer, Salovey and colleagues (e.g. Mayer et al., 1999, 2000; Mayer and Salovey, 1993, 1995, 1997; Salovey and Mayer, 1990), has provided a stricter scientific treatment of this construct.

Social and emotional intelligence share some attributes with cultural intelligence as defined ahead, such as the idea that intelligence is inherently multidimensional. However, both of these constructs are specific to the culture in which they were developed and do not necessarily relate to cross cultural interactions. For example, social skills learned and honed in one country may be ineffective or even offensive in another culture with different rules for social interaction (e.g. Ruzgis and Grigorenko, 1994). We know that culture can influence rules of emotional display

(Ekman, 1982), and we have some evidence that culture-specific norms exist for experiencing emotions (Eid and Diener, 2001). Cultural intelligence builds on these ideas, but is not merely an application of existing intelligence constructs to a new domain as suggested in other definitions (Earley, 2002; Earley and Ang, 2003). It is a unique construction of interacting abilities that exists outside the cultural boundaries in which these abilities were developed.

Indicators of Cultural Intelligence

By definition, the outcome of culturally intelligent behavior is more effective intercultural interaction. This statement, of course, begs the question of what indications suggest cultural intelligence in action. A good general description of such effectiveness might be drawn from the literature on successful adjustment to a foreign culture (Brislin, 1981; Cushner and Brislin, 1996; Ruben and Kealey, 1979) and the expatriate adjustment literature (e.g. Aycan, 1997). These literatures have summarized the following characteristics of an effective intercultural interaction as:

- *Good personal adjustment*, indicated by feelings of contentment and well being. Individuals who are well adjusted would say that they feel comfortable interacting with this culturally different person, or in this culturally different situation; and experience no greater stress than they would experience in a similar interaction with a member of their own culture and in their own cultural context.
- Development and maintenance of *good interpersonal relationships with culturally different others*. It is especially important to assess this aspect of effectiveness from the perspective of the culturally different other, as relationships are inherently dyadic in nature and should be perceived as positive at the dyadic, as opposed to the individual, level.

Table 1 Definitions and applications of cultural intelligence

Source	Definition of cultural intelligence	Constituent elements	Outcomes/applications
Earley, 2002; Earley & Ang, 2003	'... a person's capability to adapt effectively to new cultural contexts.'	Cognitive (Including metacognitive) Motivational Behavioral	Global assignment success Diversity assignments Training methods
Thomas & Inkson, 2003	'... involves understanding the fundamentals of intercultural interaction, developing a mindful approach to intercultural interactions, and finally building adaptive skills and a repertoire of behavior so that one is effective in different intercultural situations.'	Knowledge Mindfulness Behavioral Skills	Cross-cultural decision making Cross cultural communication Cross cultural leadership; Multicultural teams International careers
Earley & Mosakowski, 2004	'... a seemingly natural ability to interpret someone's unfamiliar and ambiguous gestures in just the way that person's compatriots and colleagues would, even to mirror them.'	Cognitive Physical Emotional/ motivational	Appropriate behavior in new cultures
Earley & Peterson, 2004	'... reflects a person's capability to gather, interpret, and act upon these radically different cues to function effectively across cultural settings or in a multicultural situation.'	Metacognitive/ Cognitive (e.g., learning strategies and cultural sense making) Motivation (e.g., cultural empathy and self-efficacy) Behavior (e.g., acceptable behavior in culture and mimicry)	Intercultural training Multinational teams
Earley, Ang & Tan, 2006	'... a person's capability for successful adaptation to new cultural settings, that is for unfamiliar settings attributable to cultural context.'	Cultural strategic thinking Motivation Behavior	Diversity assignments Global work assignments Global teams Global leadership
Thomas, 2006	'... the ability to interact effectively with people who are culturally different.'	Knowledge Mindfulness Behavior	Development Assessment
Ang et al., 2007	'... an individual's capability to function and manage effectively in culturally diverse settings.'	Cognition Metacognition Motivation Behavior	Cultural judgment and decision making Cultural adaptation and performance
This article	'... a <i>system</i> of interacting knowledge and skills, linked by cultural metacognition, that allows people to adapt to, select, and shape the cultural aspects of their environment.'	Cultural Knowledge Cross-Cultural Skills Cultural Metacognition	Effective intercultural interactions (personal adjustment, interpersonal relationship development, task performance)

- The effective *completion of task-related goals*. While the goals may differ from person to person and situation to situation, goal accomplishment is always a candidate as an indicator of an effective interaction, in this case, in a cross cultural setting.

Based on these dimensions of self, relational, and task effectiveness outcomes, we would thus expect cultural intelligence to be positively related to expatriate adjustment, task completion by culturally diverse groups, effective decision making in a multicultural context, leadership of culturally different others and a host of other cross cultural interactions. However, these distal outcomes might also be related to a variety of factors that have little to do with cultural intelligence. For example, although specifying a motivational facet of (cultural) intelligence (e.g. Ackerman, 1996; Ceci, 1990) is problematic (i.e. motivation and intelligence may have a limited recursive relationship, but are not components of each other), the motivation to interact effectively with culturally different others certainly contributes to these positive outcomes. However, while cultural intelligence is presented here in positive terms that suggest respect for other cultures, the definition does not preclude highly culturally intelligent individuals from being otherwise motivated, for example, for individual gain at a partner's expense. As with impression management (see Gardner and Martinko, 1988), some people with high cultural intelligence could use this capability for less than noble purposes. Our view thus contrasts with Earley and colleagues' (e.g. Earley and Ang, 2003) definition that suggests that the motivation to act positively toward culturally different others is a central facet of cultural intelligence.

Cultural Intelligence Defined

We define cultural intelligence as a *system* of interacting knowledge and skills, linked by

cultural metacognition, that allows people to adapt to, select, and shape the cultural aspects of their environment. This definition puts the construct in the domain of multifaceted conceptualizations of intelligence. Thus, not only does cultural intelligence include multiple types of knowledge (understanding of a body of information) and skills (mastery of an application of knowledge), it involves both cognitive and metacognitive (knowledge of and control over one's thinking and learning) dimensions. In our conceptualization, it is important that we differentiate between intelligence and intelligent behavior. That is, what constitutes intelligent behavior (behavior demonstrating appropriate knowledge and skills) may differ from one cultural environment to another (e.g. Cole et al., 1971; Johnson et al., 2006). However, because the same mental processes may give rise to different behaviors in different cultural contexts, it is essential that cultural intelligence captures that aspect of intelligence that is common across cultures as opposed to what varies between them.

Thus we conceive of cultural intelligence as knowledge and skills that are developed in a specific cultural (cross cultural) context, but the effectiveness of which in the production of culturally intelligent behavior is dependent on a culture general process element called *cultural metacognition*. Cultural intelligence, like other domains of research that address a complex outcome (e.g. Hanisch et al., 1998) is a multidimensional construct that has compensatory qualities in its effects on its outcome of culturally intelligent behavior. While the component elements of cultural intelligence in our definition are somewhat similar to those presented in other conceptualizations (see Table 1), the definition of cultural intelligence as a *system* of interacting abilities is unique, as is the linking function of cultural metacognition. A graphic representation of the domain of cultural intelligence is presented in Figure 1.

In the following, we develop the logic for

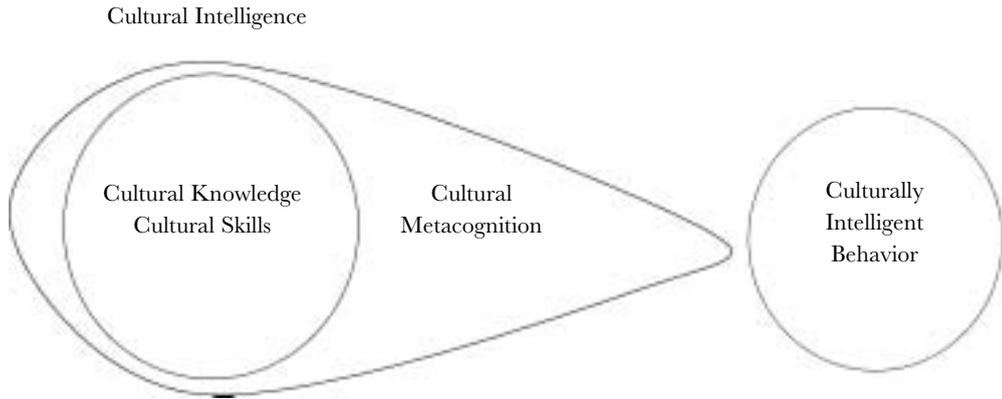


Figure 1 Domain of cultural intelligence

the inclusion of each of the elements of knowledge, skills and cultural metacognition in our model of cultural intelligence. We also describe the nature of the interaction among these three elements that results in the emergence of cultural intelligence as a unique construct.

Cultural Knowledge

The cultural knowledge component of cultural intelligence includes what Chi (1978) calls 'declarative knowledge', but what we refer to as the content component of cultural knowledge, because it refers to content knowledge in a specific domain – here the cultural domain. Specific content knowledge of cultures is the foundation of cultural intelligence because it forms the basis for comprehending and decoding the behavior of others and ourselves. Recognizing the existence of other cultures and defining the nature of differences between them are indicative of the mental processes that are at the core of systems definitions of intelligence (see Sternberg, 1997a). This knowledge allows a better grasp of the internal logic and modal behavior of another culture, which can serve as a first best guess (Adler, 1997) about that behavior. This type of knowledge allows for mapping (DiStefano and Maznevski, 2000)

oneself onto the terrain of the new culture. The implication here, of course, is that knowledge of self and one's own culture are also important components of cultural intelligence. Knowledge of cultural identities, values, attitudes, and practices makes for greater predictability in social interaction, more accurate attributions, and ultimately more effective intercultural behavior.

As culture specific content knowledge is acquired, it is categorized in order to cope with the complexity of the environment (Rosch, 1975). With the acquisition of more and more knowledge, the number of categories increases, and the organization of the categories in memory improves (Taylor, 1981). That is, these antecedent knowledge structures become increasingly complex and accessible. Studies in a number of different performance domains support the importance of the level of development of antecedent knowledge, although we believe, as discussed ahead, that conditions must be met to fully realize the benefits of complex content knowledge. Knowledge about a particular domain has clearly been shown to have a substantive influence on performance in that domain (e.g. Anderson, 1982). The literature on novices versus experts is instructive in this regard. For example, experts in

bridge (Charness, 1979), physics (Chi et al., 1981), and politics (Fiske, 1982) all have been shown to have more complex cognitive structures in a specific domain, which in turn positively influences their performance. More complex cognitive structures also result in less extreme, and hence more accurate, evaluations of others (Linville, 1982). More specific to cultural knowledge, Wade-Benzoni et al. (2002) provide evidence suggesting that cultural knowledge is positively related to understanding the perspective of another culture. Additionally, consistent with our conceptualization of cultural intelligence, Porter and Inks (2000) show that more elaborated, cognitively complex knowledge structures are also related to adaptive behavior.

Cultural knowledge refers not only to a declarative or content component (e.g. knowledge about cultures, social interactions, personal history), but also to stored processes (i.e. culture general processes directed to the solution of specific problems). Process or procedural knowledge includes knowledge of the effect of culture on one's own nature or the nature of another as a cognitive processor, knowledge that involves cross cultural encounter or problem-solving, its demands, and how those demands can be met under varying conditions. The creation of this culture general knowledge involves learning from specific experience with culturally different others and is the result of reflective observation, analysis, and abstract conceptualization, which can create new mental categories and re-categorize others in a more sophisticated cognitive system. Ultimately, knowledge gained from specific experience is recoded into broader principles (see for example, Chi and VanLehn, 1991). This activity requires the involvement of higher order cognitive processes, which we describe ahead under cultural metacognition.¹

Thus, for example, one might know that Chinese people hold collectivist value orientations (content knowledge), and might also know that cultural value orientations help

shape behavior by influencing preferences for specific modes of behavior and outcomes (process knowledge). One may also know the extent to which his/her own values and motives are similar to or different from Chinese people (content). This knowledge helps the individual interpret and more accurately attribute the behavior that he/she observes in Chinese people (process). However, using this knowledge to exhibit culturally intelligent behavior and ultimately shape cross cultural interactions requires other factors, such as skills and metacognition discussed ahead. Thus specific knowledge in the cultural domain is positively related to effective intercultural interactions, but it is only one of a set of interacting elements that constitutes cultural intelligence.

Skills

The literature on cultural adjustment and related outcomes of interaction with culturally different others or in foreign environments is replete with individual difference constructs that purport to explain or predict effectiveness. They range from attitudes such as world-mindedness (Sampson and Smith, 1957) and personality characteristics (Costa and McRae, 1992) such as openness (Caligiuri, 2000), to skills in a variety of domains, such as communication skills (Ting-Toomey, 1999). Some stable characteristics of individuals may contribute to the acquisition of cultural intelligence; that is, traits may predispose individuals to learn information that fits their profile. However, the *exact* nature of any relationship between personality and intelligence is far beyond the scope of this article (see Sternberg and Ruzgis, 1994 for further discussion). Moreover, we suspect that cultural intelligence is related to, yet distinct from, personality in much the same way as is emotional intelligence (Law et al., 2004). Here, because of the dynamic and developmental nature of cultural intelligence, we have focused on those individual differences that can be developed and used as a lever for

improvement; hence, our use of the term 'skill'. Despite limiting ourselves to this term, there is still no shortage of contenders for skill elements that might contribute to cultural intelligence.

Just as with general intelligence (see Gottfredson, 2002), the construct of cultural intelligence is so broad that the skills components might be categorized and measured in a number of ways. Our review of the literature revealed dozens of inventories of individual differences that might be relevant. The number of factors into which elements were categorized varied. However, both empirical and conceptual methods have tended to settle on between three and five factors. Recent examples include the five aspects of the intercultural sensitivity scale (Chen and Starosta, 2000) and the three factors of cognitive perceptual management, relationship management, and self-management of the Global Competencies Inventory (Bird et al., 2007), an extension of the perceptual, other and self orientations of expatriate acculturation (Mendenhall and Oddou, 1985). While the focus of these inventories has varied somewhat, two factors seem to appear consistently. These factors have to do with information gathering or perceptual skills, and interpersonal or relationship skills. Recent reviews (for example, Yamazaki and Kayes, 2004) have also focused on action skills and analytical skills. Our categorization of the skills component of cultural intelligence builds on this literature to derive three skill sets (perceptual, relational, and adaptive), with the fourth (analytical skills) conceptually similar to cultural metacognition described ahead.

In order to specify the skills elements of cultural intelligence, it is important to recognize the dynamic nature of cultural intelligence. That is, it is not static, but involves continuous learning from social interactions. Development of cultural intelligence by learning from social experience means paying attention to and appreciating critical differences in culture and background between

oneself and others. This implies the importance of what we have labeled *perceptual skills*. Candidates for inclusion here are constructs such as open-mindedness, tolerance of uncertainty, and non-judgmentalness. Also, learning from social interaction with culturally different others and/or in foreign cultural contexts requires *relational skills* such as flexibility, sociability, empathy and so on. While both of these skill dimensions are important, the skill that perhaps most clearly distinguishes cultural intelligence from other related ideas is the ability to generate appropriate behavior in a new cultural setting.

This *adaptive skill* involves being able to exhibit behavior that is chosen from a well-developed repertoire or is quickly developed during the course of an intercultural interaction. Candidates for subordinate dimensions of this skill include self-monitoring, behavioral flexibility and self-regulation. Rather than being simply adaptive toward behavior that is typical of a target culture, this skill manifests itself in generating new behavior that is appropriate to the cross cultural interaction context. This is an important difference in the conceptualization of cultural intelligence presented here versus other conceptualizations (e.g. Ang et al., 2007; Earley, 2002; Earley and Ang, 2003), and includes the possibility that in some situations the best option is not to adapt behavior at all.

A body of evidence suggests that the adoption of behavior more like that of the other culture participant (also called mimicry in Earley and Ang, 2003; Earley and Peterson, 2004) in an intercultural interaction is a double-edged sword (Francis, 1991; Giles and Smith, 1979; Thomas and Ravlin, 1995). While unconscious mimicry might have positive results in some situations (such as when a minimal perception of similarity leads to positive attitudes, e.g. Byrne, 1971), this effect can be illusory. High levels of mimicry are very likely to be attributed to something other than the actor's character and perceived as insincere or even devious (see

Thomas and Ravlin, 1995). Therefore, as opposed to chameleon-like mimicry (as in Earley and Ang, 2003; Earley and Peterson, 2004), cultural intelligence requires skill in adapting one's behavior. At its zenith, this skill may be seen as fostering a positive learning environment and projecting respect for other cultures in order to influence the cross cultural interaction context. That is, culturally intelligent individuals can shape the context of the interaction to create a unique environment, as opposed to merely adjusting to it. They do this by facilitating positive attitudes and behavior of the culturally different other(s) with whom they interact. High levels of adaptive skills may be positively related to effective cross cultural interactions. However, for this adaptive skill to demonstrate *cultural intelligence*, it must be based on the knowledge of culture and on cultural metacognition, which allows specific knowledge to be translated into behavior appropriate to a *new* intercultural interaction.

Cultural Metacognition

The construct of cultural metacognition is based on the more general idea of metacognition, and is related to the analytic skills mentioned previously. Metacognition is defined as knowledge of and control over one's thinking and learning activities (Flavel, 1979; Swanson, 1990). It is this aspect of cultural intelligence that most clearly stands outside the cultural context in which it was formed. For example, Sternberg (1985) suggested several core mental processes that transcend environmental context. These are (1) recognizing the existence of a problem, (2) defining the nature of the problem, (3) constructing a strategy to solve the problem, (4) mentally representing information about the problem, (5) allocating mental resources to solve the problem, (6) monitoring one's solution to the problem, and (7) evaluating one's solution to the problem. Empirically, a construct validation of metacognition in problem solving suggested similar context independent com-

ponents (Allen and Armour-Thomas, 1991).

Thus metacognitive thoughts are deliberate, planful, intentional, goal-directed, and future-oriented mental behaviors that can be used to accomplish cognitive tasks (Flavell, 1979). While not all researchers agree on all aspects of metacognition, there does seem to be a general consensus that metacognition involves (1) the ability to consciously and deliberately monitor one's knowledge processes and cognitive and affective states (sometimes called metacognitive experiences), and (2) to regulate these processes and states in relation to an objective (also called metacognitive strategies). Flavell (1979) describes this process as '*the active monitoring and consequent regulation* [italics added] and orchestration of these [cognitive] processes in relation to the cognitive objects or data on which they bear, usually in service to some concrete goal or objective' (p. 907). It is this notion of active monitoring and regulation of mental processes that guides our description of cultural metacognition. Cultural metacognition is thus metcognition in a specific domain, that of cultural experiences and strategies.

Consistent with Flavell (1979), we define *cultural metacognitive monitoring* as attention to conscious cognitive experience, as well as to affective and personal-motivational states with regard to the cultural milieu that determines the course of a strategy in intercultural interaction. This involves maintaining heightened awareness of, and enhanced attention to, the current cultural experience or present reality, including awareness of the assumptions, emotions, motivations, intentions, behaviors, and skills of oneself and culturally different others.

Cultural metacognitive regulation involves processes that are used to self-regulate and control cognitive activities and to ensure that a cognitive goal (e.g. effective handling of a cross cultural situation) has been met. Self-questioning is a common metacognitive strategy to ensure that the goal is achieved. This control of cognitive processing involves

bringing to mind knowledge relevant to the focus of attention (cultural interaction), inhibiting the tendency to act automatically, evaluating possible responses with reference to motives and goals (including not responding), and withholding judgment of others.

There continues to be substantial debate in the literature regarding the extent to which metacognitive processes operate at a purely conscious level (e.g. Glaser and Kihlstrom, 2005; Marks, 1999). Some researchers suggest that thinking about one's thinking, through repeated use or overlearning, may become automatized and consequently non-conscious. Others note that conscious monitoring of means, goals, and variables may actually diminish as effective storage and retrieval behaviors become progressively automatized and quasi-reflective through repeated use and overlearning. Thus the need for metacognition to be clearly conscious may well diminish as the behaviors it once mediated become more self-starting.

Whether the term metacognitive should be used to describe thoughts that were once metacognitive but have since become non-conscious and automatic, remains a debatable issue. Certainly, the nonconscious and automatic nature of these thoughts contrasts sharply with other, more prominent, features of metacognition; namely, the extent to which metacognitive processes involve an awareness of oneself as 'an actor in his/her environment' and a 'deliberate storer and retriever of information'. It seems reasonable, therefore, to adopt the convention that the term *metacognitive* be reserved for 'conscious' and 'deliberate' thoughts that have as their object other thoughts. As they are conscious and deliberate, culturally metacognitive thoughts are not only potentially controllable by the person experiencing them, but they are potentially reportable and therefore accessible to the researcher. Nonconscious reflection on one's thinking may actually represent the implementation of an adaptive skill, as opposed to the actual metacognitive

process. Examples differentiating these various components of cultural intelligence are presented in Table 2.

Linking Function of Cultural Metacognition²

Cultural metacognition occupies a central position in our conceptualization of cultural intelligence. The term metacognition (also called metacognitive knowledge in Earley and Ang, 2003) has been used in other conceptualizations, but its role as a linking mechanism here is substantially different. It is the element that allows the emergence of cultural intelligence from the interaction of its constituent elements. It is much like the broth in the chicken soup that many of our parents made. That is, it is distinctive from the bits of chicken, onion, carrot, celery (or whatever goes into chicken soup in your culture) and so on, but it wouldn't be chicken soup without it. Also, like the stock in chicken soup, cultural metacognition is what makes cultural intelligence dynamic. The flavor of the soup becomes richer and more complex over time, just as we anticipate that cultural intelligence is further enhanced through the processes of cultural metacognition, including cognitive self-regulation, abstraction of specific knowledge, focus of cognitive resources, and compensatory effects as described ahead.

Cognitive Self-Regulation

Cultural metacognition regulates cognition in that it refers to an understanding of one's own cognitive behavior in the planning and monitoring of performance and in the use of cognitive strategies in a particular domain (see Perfect and Schwartz, 2002). Cultural metacognition focuses attention on the knowledge of culture, skills for intercultural interaction, and the processes of cultural influence, as well as on an individual's motives, goals, emotions, and external stimuli relevant to the situation. By so doing it controls cognitive processing and response by (1) bringing

Table 2 Cultural intelligence manifested in cultural knowledge, skills, and cultural metacognition

Dimension	Example
Cultural knowledge	
Content	I know that in general, Americans enjoy and Chinese dislike adversarial debate
Process	I know that my attitudes and those of others toward specific behaviors are influenced by cultural norms and values
Cultural skills	
Perceptual	I can adapt my behavior (suppress my tendency, as an American, to debate when in a culture that considers it to be negative)
Relational	
Adaptive	
Cultural metacognition	
Monitoring	I actively reflect on available knowledge and skills regarding debate, how these relate to desired outcomes, in a cross-cultural setting to formulate alternative courses of action
Regulation	

to mind knowledge relevant to the focus of attention, (2) choosing not to respond automatically, (3) inhibiting undesirable responses, and (4) editing responses to be consistent with motives and goals (see Logan, 1989). Theories of self-regulation suggest that the kind of metacognitive monitoring and control described here is valuable in facilitating the choice of behaviors that are consistent with one's needs and values (Deci and Ryan, 1980; Ryan et al., 1997). In contrast, automatic cognitive processing precludes the active consideration of these options. Thus one way in which cultural metacognition operates is by establishing the opportunity to consider a range of behavioral options based on knowledge of how cultures vary and how culture affects behavior and the skills of the individual.

Abstraction of Specific Knowledge

Cultural metacognition also involves the ability to transfer knowledge gained from a specific experience to broader principles that can be used in future interactions in other settings (abstraction). Transfer of learning

requires the application of previously acquired knowledge (see Gick and Holyoak, 1987). It is affected by the initial appropriateness of the encoding and structuring of knowledge. The metacognitive component of cultural intelligence focuses attention on appropriate information and influences the categorization of knowledge and the structure of memory. Transfer also requires that prior knowledge be retrieved. As discussed previously, cultural metacognition acts to facilitate conscious retrieval and application of appropriate knowledge as opposed to incidental or automatic retrieval.

Automatic retrieval is problematic in this context because of the complexity of interaction processes in cross cultural interactions. As regards specific expertise in narrow domains (e.g. our bridge players mentioned previously), greater knowledge is unquestionably effective. However, as situations become more complex and require flexibility or the creation of new response patterns, greater knowledge may actually be constraining (Mednick, 1962; Simonton, 1983; Sternberg and Lubart, 1991). Prior research has shown

that depending on their level of development, cognitive schemas may initially help individuals learn related social material (early development helps individuals focus on the appropriate information and strategies for learning). As schemas become further developed, they interfere with related learning (they are being used automatically; Fiske and Dyer, 1985). Furthermore, automatic retrieval requires the transfer situation to be very similar to the situation in which knowledge was learned (a narrow domain), if it is to be used successfully. In contrast, cultural metacognition facilitates the abstraction or retrieval of more general principles because of the active creation of new categories and consideration of new perspectives associated with this categorization of knowledge. Said otherwise, knowledge encoded in memory in this way is more generalizable, and less bound to the specific experience that created it.

Focus of Cognitive Resources

Cultural metacognition also functions to overcome the effects of the normal distractions presented by multiple tasks or competing concerns such as the need for closure (Chiu et al., 2000). For example, the literature on cognitive busyness suggests that cognitively busy individuals have fewer resources to apply to mental tasks. Thus they are less accurate in their perceptions and more likely to rely on well-learned routines or simple cognitive representations, such as cultural stereotypes (Gilbert and Hixson, 1991; Pendry and MacRae, 1999). Also, cognitive busyness interferes with the ability of individuals to adjust (correct automatic behavior; Foster et al., 1998) and to engage in challenging (non-congruent) self-presentations (Pontari and Schlenker, 1999). That is, cognitive loads steal needed resources from the task at hand, such as adapting behavior, and thus force a reliance on automatic cognitive processing, which is relatively fast and effortless. Cultural metacognition controls these lower order cognitive processes and focuses

cognitive resources, allowing the opportunity for the knowledge of culture, knowledge of self, and an individual's skills to be applied to cross cultural interactions. In conjunction with these processes, the focus of resources via metacognition allows for increased goal persistence and directedness in the face of these many competing claims to attention (Gollwitzer and Schaal, 1998).

Compensatory Effects

Finally, cultural metacognition also functions to compensate for individual disadvantages in cultural knowledge or skills. This process is consistent with the view of metacognition as distinct from general aptitude in its effect on performance (Swanson, 1990). It is also distinct from a view that the effect of metacognition is simply one of several separable facets of cultural intelligence as suggested in Ang et al. (2007) and in Johnson et al. (2006). For example, much of the literature regarding the performance of experts versus novices has assumed that experts have access to more knowledge or more complex knowledge routines (e.g. Chi et al., 1988). However Swanson (1990) has shown that high metacognitive/low aptitude individuals performed significantly better than low metacognitive/high aptitude individuals, thus demonstrating the distinctiveness of metacognition from general aptitude and its compensatory effect. Subsequent research has been largely supportive of this compensatory effect (Howard et al., 2000, 2001). Here we extend this idea to the cultural domain by suggesting that cultural metacognition will have a compensatory relationship with cultural knowledge and skills in overall cultural intelligence. For example, someone visiting a country for the first time might have very limited specific cultural knowledge, but high cultural metacognition would make them sensitive to this and cause them to attend more acutely to the cultural context and not to behave in a reactive or scripted manner. That is, we anticipate that cultural metacognition plays a cen-

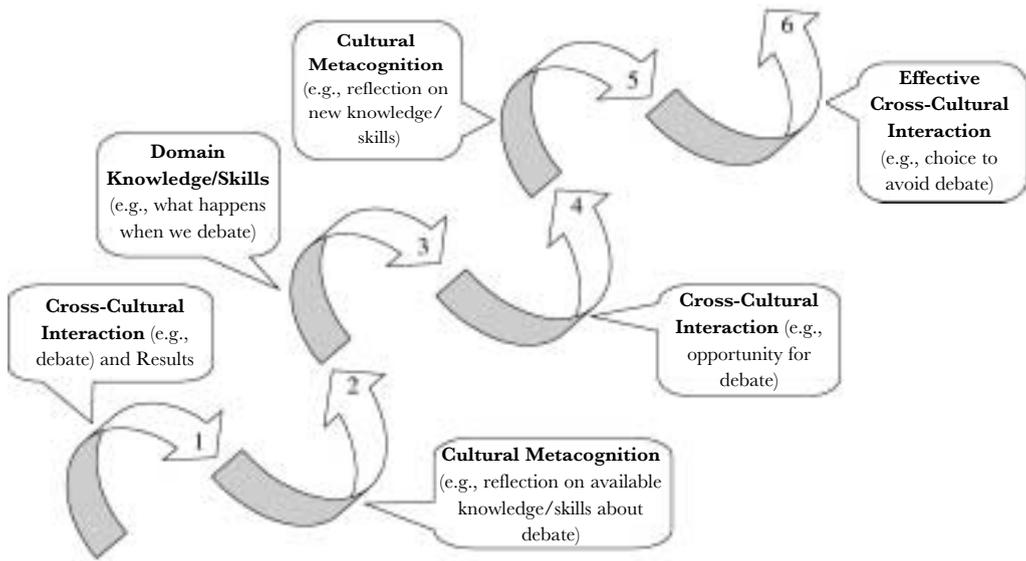


Figure adapted from Govindarajan & Gupta (2001); Thomas & Inkson (2003).

Figure 2 Episodic view of the interactive dimensions of cultural intelligence

tral role, in that without attention to process, behavior in complex settings is unlikely to be consistently successful. Said otherwise, cultural knowledge and skills are unlikely to generalize to new cultural settings on a consistent basis in the absence of cultural metacognition.

As noted previously, relative effects of more specific knowledge and skills may vary based on the extent of complexity of the cross cultural interaction, or the degree to which creativity is required in formulating a response (Simonton, 1983). This may help to explain the distinctive effects of metacognition found by Swanson and others (Howard et al., 2000, 2001; Swanson, 1990). That is, cultural metacognition should play a much more important role in effective cross cultural interactions when the situation calls for the generation of a *new* response, or for changing the interaction environment. In situations that can be appropriately addressed with previously learned responses, well-developed

knowledge structures should adequately, and possibly more efficiently, provide an appropriate response. However, in complex or novel situations high levels of knowledge or skills may be inadequate without the activating effect of cultural metacognition.

Figure 2 presents an episodic view of the relationship between cultural metacognition and the dimensions of cultural knowledge and skills. For expository purposes, we depict a linear progression, with arbitrary beginning and ending points. In actuality, we anticipate that these processes occur simultaneously and sequentially, and in virtually any order. In this example, we depict an individual experiencing a cross cultural encounter involving debate; the result might be withdrawal on the part of the other-culture participant (1). This event causes reflection on extant domain knowledge and cultural skills on the part of the individual (2), resulting in gains in domain knowledge and skills as this new experience is incorporated in memory

(3). Based on these experiences, the next cross cultural interaction (4) generates a reflection on the actor's new knowledge and skills (5), resulting in effective behavior (6), in our example, avoidance of debate to improve the relationship with the other-culture participant.

Implications for Measurement

In this article we have defined cultural intelligence as a set of interacting elements consisting of knowledge, skills and cultural metacognition. This definition differs from those previously presented in the literature, both in terms of the constituent elements (see Table 1) and in the manner in which these facets interact. For this nascent construct to be useful, it is important that in addition to the clear definition that we hope we have developed in the preceding, we must operationalize it in a reliable and valid manner. The complete development of a measure of cultural intelligence remains a work in progress. However, based on the domain described here, it is possible to identify some critical issues in its assessment.

A number of assessment instruments that might relate to one or more components of cultural intelligence have been suggested (Ang et al., 2007; Lee and Templer, 2003). While these suggestions are based on some different assumptions regarding the domain of the construct, they still draw our attention to the multiplicity of methods available to us. That is, conventional testing methods such as surveys, interviews, observations, computer simulations, critical incidents, and verbal protocols may all be profitably employed to measure one or more aspects of cultural intelligence. We suggest that any single approach to measurement of this complex construct is likely to be inadequate. Briefly we discuss methodological issues with regard to the domain of cultural intelligence as we define it.

Given that cultural intelligence is defined as resulting in an individual's ability to adapt

to, to select, and to shape the cultural aspects of their environment, then *behavioral* assessments are certainly called for at some level of measurement. A number of self-report instruments that assess individuals' perceptions about their ability to behave effectively in cross cultural interactions (see e.g. Ang et al., 2007) have been presented. However, the epitome of the evaluation of behavioral indicators must certainly be the assessment center. Assessment center approaches usually revolve around situational exercises and critical incidents so that an individual's actual behavior becomes observable. Also, behavioral indicators for many of the elements of cultural intelligence, as specified here, can be identified (see Stahl, 2001). However, just as in broader outcome indicators such as effective cultural adjustment, it is always possible that appropriate behavior is serendipitous and/or attributable to other than the individual difference construct of cultural intelligence. Therefore, while actual behavioral indicators are highly desirable, it seems clear that multiple methods will be required to develop an accurate picture of cultural intelligence, including measures more proximal to the construct.

Measuring the *knowledge* component clearly seems a candidate for survey/test or interview assessment approaches. The critical question with regard to this component may be the extent to which an instrument captures general aspects of knowledge that are applicable to the cultural domain, but not so specific to one culture as to be useless in another culture. For example, I may know (1) that Japanese businessmen typically exchange business cards, or (2) that Japanese businessmen exchange business cards to establish status relationships, or (3) that Japanese culture is high power distance and the exchange of business cards is an indication of this as it helps to establish status relationships. Clearly, type 1 and type 2 knowledge indicate a more sophisticated categorization scheme and possibly superior transferability

to another cultural context. However, when viewed in combination with appropriate skill dimensions and a metacognitive strategy, type 1 knowledge may be sufficient. In fact it is possible to argue that high (perceptual, relational, and adaptive) skills coupled with a high ability in cultural metacognition make domain specific knowledge less important to the production of culturally appropriate behavior (see Swanson, 1990), although this may vary with the complexity or novelty of the situation. Thus the level of importance of domain specific knowledge to cultural intelligence is a question awaiting empirical verification.

As indicated previously, the number of possible candidates for inclusion as important *skills* components of cultural intelligence is massive. The challenge with regard to operationalization in this case is not so much method, since most of the elements are reflected in existing psychometric instruments, as in which skills to measure. Essentially the goal is to construct what one of our colleagues called an 'orthogonal greatest hits'; that is, a small collection of the most important and mostly uncorrelated skills contributing to cultural intelligence.

The challenges associated with the operationalization of *cultural metacognition* are consistent with those of measuring metacognition generally. The ability of individuals to provide any true introspection into their own cognitive processes has long been questioned (Nisbett and Wilson, 1977). However, much of the literature on metacognition relies on retrospective self-reports as a vehicle for tapping into this construct (e.g. Mokhtari and Reichard, 2002; Schraw and Dennison, 1994). Recently, some attempts at measuring cultural aspects of metacognition (Ang et al., 2007) have adopted this approach. On the other hand, building on the recommendations of Ericsson and Simon (1993), some researchers have investigated metacognition using process tracing techniques. Verbal protocol analysis is probably the most widely of

these techniques. Verbal protocols assume that the way participants search for information, evaluate alternatives, choose courses of action and so on can be registered through their verbalization. The procedure used to elicit verbal protocols varies. A central distinction is whether the verbalization is collected during (concurrent with) the cognitive processing or afterward (retrospective). While, in general, concurrent protocols outperform retrospective ones, the latter may have some advantages in providing information about the final choice of a course of action (Kuusela and Paul, 2000). In addition to direct assessments of cultural metacognition, the domain of the construct also suggests indirect indicators. That is, both the speed of cognitive processing and the ability to convert specific information into general guidelines for cross cultural interaction would be indicators of metacognitive activity as defined here.

In previous sections we raised issues with regard to the assessment of the behavioral outcomes of cultural intelligence and its three interacting components. However, the definition of cultural intelligence as a system of interacting knowledge, skills and metacognition presents another challenge. That is, the developmental nature or instability of cultural intelligence suggests the possible applicability of dynamic types of tests (Sternberg, 1997b). Dynamic tests of intelligence assess the participant's ability to profit from feedback, which gives an indication of the difference between his/her latent capacity and observed ability; also called the zone of proximal development (Vygotsky, 1978). The Swanson Cognitive Processing Test (Swanson, 1996) is an example of such a dynamic measure in which examinees receive a problem, then, if they answer correctly, they move on; however, if not, they are given guided feedback in a succession of steps to help them solve the problem. This approach may be particularly appropriate for assessing cultural intelligence in that it taps into participants' ability to use cultural metacognition to draw

on knowledge and skills to learn to make better choices about appropriate behavior in a new cultural setting.

This discussion suggests that no single method will assess cultural intelligence as defined in this article. Clearly, the retrospective self-reports of cognitive processes proposed elsewhere (e.g. Ang et al., 2007; Earley and Mosakowski, 2004) seem inadequate to make accurate assessments. Rather, a matrix of assessment approaches, perhaps contained in a single delivery vehicle, will be required to tap this new construct. Regardless of the methods, the psychometric context that defines the operationalization(s) and measurement of cultural intelligence must be established. It is important to define the assessment of the construct in such a way that cultural bias is not introduced. Lack of cross cultural equivalence is a common problem in most western intelligence tests (e.g. Sternberg, 1985, 2000), and cultural intelligence is an inherently multicultural construct.

Conclusion

Defining intelligence of any sort has been challenging, and cultural intelligence presents at least as many issues. However, predicting and explaining the effectiveness of individuals in intercultural interactions continues to be a significant challenge for a number of different fields of study. The concept of cultural intelligence, as a continuum of capability explaining why some individuals are more effective in this regard than others, has the potential to be a significant development with regard to understanding cross cultural interactions. In this article we have presented a conceptualization that defines cultural intelligence as a system of interacting abilities. In so doing we build on the systems view of intelligence and provide a clear description of the interactive effect of cultural metacognition that allows for the emergence of cultural intelligence. Additionally, we avoid the unnecessary complication of a motivational

facet of cultural intelligence and define the adaptive skills component in a manner that does not suggest mimicry, but is consistent with the existing literature on effective cross cultural interactions, and allows for the generation of unique responses and influence on the immediate interaction context. We believe we have presented a parsimonious definition of cultural intelligence that captures the construct in such a way that it will explain variance in effective cross cultural interactions not accounted for by existing constructs such as intercultural competence or global mindset or by other definitions. Its utility awaits the development of a valid measure.

Notes

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- 1 While we have presented it here for conceptual clarity, in practice it may sometimes be difficult to differentiate procedural knowledge from the metacognitive component of cultural intelligence.
- 2 This discussion draws heavily on the linking function of the construct of *mindfulness*, a subordinate element of cultural metacognition as described in Thomas (2006) and Ting-Toomey (1999).

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Résumé

Intelligence culturelle : domaine et évaluation (David C Thomas, Günter Stahl, Elizabeth C. Ravlin, Steven Poelmans, Andre Pekerti, Martha Maznevski, Mila B. Lazarova, Efrat Elron, Bjørn Z. Ekelund, Jean-Luc Cerdin, Richard Brislin, Zeynep Aycan and Kevin Au)

Le concept d'*intelligence culturelle*, récemment introduit dans la littérature de gestion, a le potentiel d'expliquer l'efficacité des interactions interculturelles. Il n'y a à ce jour aucune définition ou opérationnalisation acceptées de ce concept naissant. Nous développons dans cet article une conceptualisation de l'intelligence culturelle qui répond à un certain nombre de limitations importantes des définitions antérieures. Nous présentons une définition concise de l'intelligence culturelle comme système d'aptitudes en interaction ; nous décrivons comment ces éléments interagissent pour produire des comportements culturellement intelligents et identifions enfin quelles sont les implications en termes de mesure.

摘要

文化智能：领域和评价

David C Thomas, Günter Stahl, Elizabeth C. Ravlin, Steven Poelmans, Andre Pekerti, Martha Maznevski, Mila B. Lazarova, Efrat Elron, Bjørn Z. Ekelund, Jean-Luc Cerdin, Richard Brislin, Zeynep Aycan and Kevin Au

文化智能这一建构近来被引入到管理文献中，它对于解释跨文化互动中的有效性具有巨大潜力。然而，目前对于这个新出现的建构尚未形成普遍接受的定义，并且没有实现操作化。本文对文化智能进行概念化，以弥补以往定义的重大局限。我们首先把文化智能简要定义为一个能力互动的体系，并描述这些要素是如何互动以产生文化上的智力行为，最后提出测量意义。